SURFACE VEHICLE RECOMMENDED PRACTICE

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Characterizing a Test Surface for Motorcycle Side Stand Retraction Performance Testing

RATIONALE

This document addresses mature and stable technology which is not dynamic in nature.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Motorcycle Technical Steering Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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***Foreword*—**The retraction performance of a side stand/motorcycle combination is related to the frictional characteristics of the test surface. For this reason, it is important to have a standardized and repeatable method of characterizing test surfaces used for motorcycle side stand retraction performance testing. This document describes a durable, economical, and repeatable method to characterize frictional distinctions of pavement surfaces.

1. ***Scope*—**This SAE Recommended Practice is intended for use only in characterizing test surfaces used in motorcycle side stand retraction testing (SAE J1578). The equipment and procedure described in this document yields repeatable results in characterizing test surfaces in a way found to be related to retraction performance. The test results obtained with this procedure do not necessarily correlate with measurements obtained with other friction measurement procedures which have been developed for other purposes.

1.1 **Purpose—**The purpose of this document is to establish a uniform method of characterizing the frictional characteristics of pavement test surfaces used in motorcycle side stand retraction performance testing.

2. ***References***

2.1 **Applicable Publication—**The following publication forms a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J1578—Motorcycle Side Stand Retraction Test Procedure

3. ***Apparatus***

3.1 **Carpet Sled—**The apparatus shall consist of a "carpet sled," which is a piece of 15 x 15 cm (approximately 6.0 x 6.0 in) plywood approximately 1.9 cm (3/4 in) thick. Covering one 15 x 15 cm face shall be a 15 x 15 cm piece of carpet meeting the requirements of 3.4. The backing of the carpet shall be affixed to the plywood with strong adhesive. Screwed into the middle of each edge of plywood shall be a small eye in which a piece of chain approximately 30 cm (12 in) long can be hooked onto. The opposite end of the chain shall be attached to a force measurement device such as a spring scale.

3.2 Force Measurement Device—A force measurement device such as a spring scale or equivalent device shall be used. The device shall be configured so as not to contact the test surface when it is used to pull the sled according to Section 5. The device shall indicate force with a minimum precision of 1.0 N (0.25 lbf).

3.3 Carpet Sled Weight—The sled shall be weighted with a sack containing sand, leadshot, or similar "shape conforming" material. The total weight of the loaded sack, sled, and chain shall be 45 N ± 1.0 N (10.0 lbf ± 0.25 lbf) when weighed with the same force measurement device which is used for the pull test.

3.4 Carpet Specifications

* Stitch Count—8.5 stitches per inch
* Pile Height—0.250 in average pile thickness
* Surface Texture—textured level loop
* Face Yarn—continuous filament Antron® nylon fiber or equivalent

Primary Backing Material—polypropylene
Secondary Backing Material—jute
Machine Gage—5/32 in
Yarn Density—30 oz yarn/in^2

The specifications describe a commercially available, industrial grade of indoor carpeting. If possible, carpet that matches the listed specifications exactly should be used. In the event that substitution becomes necessary, the parameters, which are most significant for carpet sled performance, are identified with an asterisk (*). The carpet that matches the most significant parameters shall be used.

4. Preparation—A one-time break-in is needed for new sleds. Do this by pulling the weighted sled for approximately 60 cm (2 ft) three times from each hook on a pavement with a Carpet Sled Ratio (CSR) of 0.70 to 1.00 (see Section 5).

5. Procedure

5.1 Calibration—The force measurement device shall be calibrated by using it to support reference masses weighing approximately 20 and 40 N (5 and 10 lbf). The force measurement device shall indicate the actual weight of the masses within ±1.0 N (±0.25 lbf) for each of the two masses. This calibration procedure shall be performed three times to ensure repeatability.

5.2 Temperature Limits—The ambient temperature during the measurements of 5.4 shall be between 0 and 30 °C (32 and 86 °F).

5.3 Surface Specimen—An individual specimen of the test surface shall be a circular area 100 cm (approximately 39 in) in diameter. Clear any loose debris from the surface specimen, i.e., sand, gravel, or dirt. The surface specimen shall be dry and level.

5.4 Measurements

5.4.1 Place the weighted carpet sled on the surface specimen with the carpet fully contacting the test surface. The carpet shall be dry.

5.4.2 Keeping the connecting chain parallel to the test surface, pull the carpet sled across the test surface in the direction of travel of the motorcycle with the force measurement device.

5.4.2.1 The carpet sled shall be pulled for a distance of not less than 30 cm (12 in) and not more than 50 cm (20 in) across the test surface, remaining within the test specimen area.